

2016

Solar Garden: On-Site Education

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ScholarWorks Citation

Tappenden, Audrey; Doolaard, McKinsey; Jecks, Megan; and Hunt, Benjamin, "Solar Garden: On-Site Education" (2016). *Environmental and Sustainability Studies Undergraduate Projects*. 10.
https://scholarworks.gvsu.edu/ens_undergrad/10

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Solar Garden: On-Site Education



Ben, McKinsey, Megan, Audrey

Project Overview:

Expanding the use of GVSU's Solar Garden

What is a Solar Garden?

Solar gardens include a large network of solar panels that capture sunlight and transform it into energy.

Grand Valley uses 500 Kilowatts from the Solar Garden- enough to power 80 homes.

What has already been done to promote the garden?

Brochure

Ideas for ArtPRize integration

Poster

PowerPoint Presentation



How can we continue to build upon their work?

We can add educational resources and experiences!

Community Partners & Project Stakeholders

GVSU Landscape Operations

Consumer's Energy

GVSU Sustainability Department

GVSU Students

Barco Products

Members of the community

Landscape Forms

GVSU Sustainability Department

Valley Sign Co.

Neighbors of Solar Garden

Solar Garden “As Is”



Problem Statement:

How can we increase awareness and appreciation for the solar garden, solar energy, and other renewables *on-site*?

Values

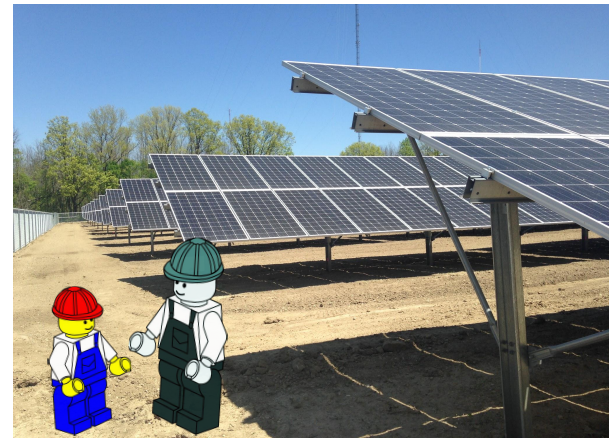
Improve community awareness of solar garden

Educate youth on solar energy

Inspire commitment to renewable energy sources

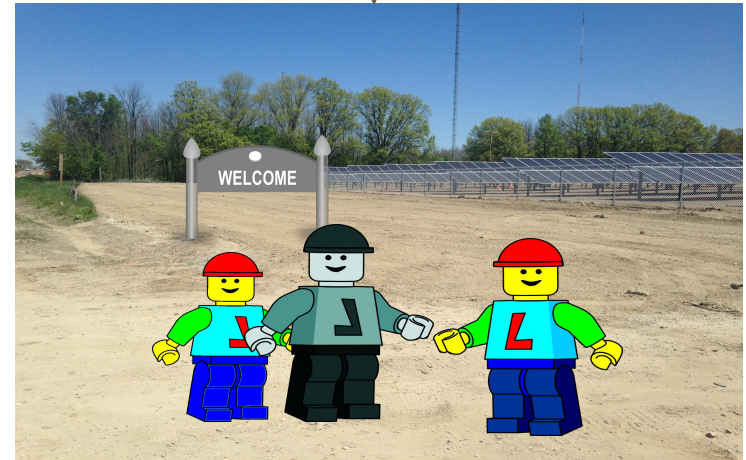
Ideation:

- Interactive- with professionals
- Educational- leading classes inside
- Take Advantage of on-site space



RE-Ideation:

- Interactive- ~~with professionals~~
- Educational- ~~leading classes inside~~
- Take Advantage of on-site space
- *Attract interest of passers-by*
- *Casual drive or walk-up appeal*
- *Use of Perimeter*
 - *Landscaping & Signage*



Prototype- What We're Adding:

- Low-Maintenance Landscaping between existing trees
 - Forsythia & Lilacs
- Bike Rack- 10 bike capacity
- (2) Seating Benches
- Sequence of Informational Signage
 - 8 Signs



Let's Take a Walk...

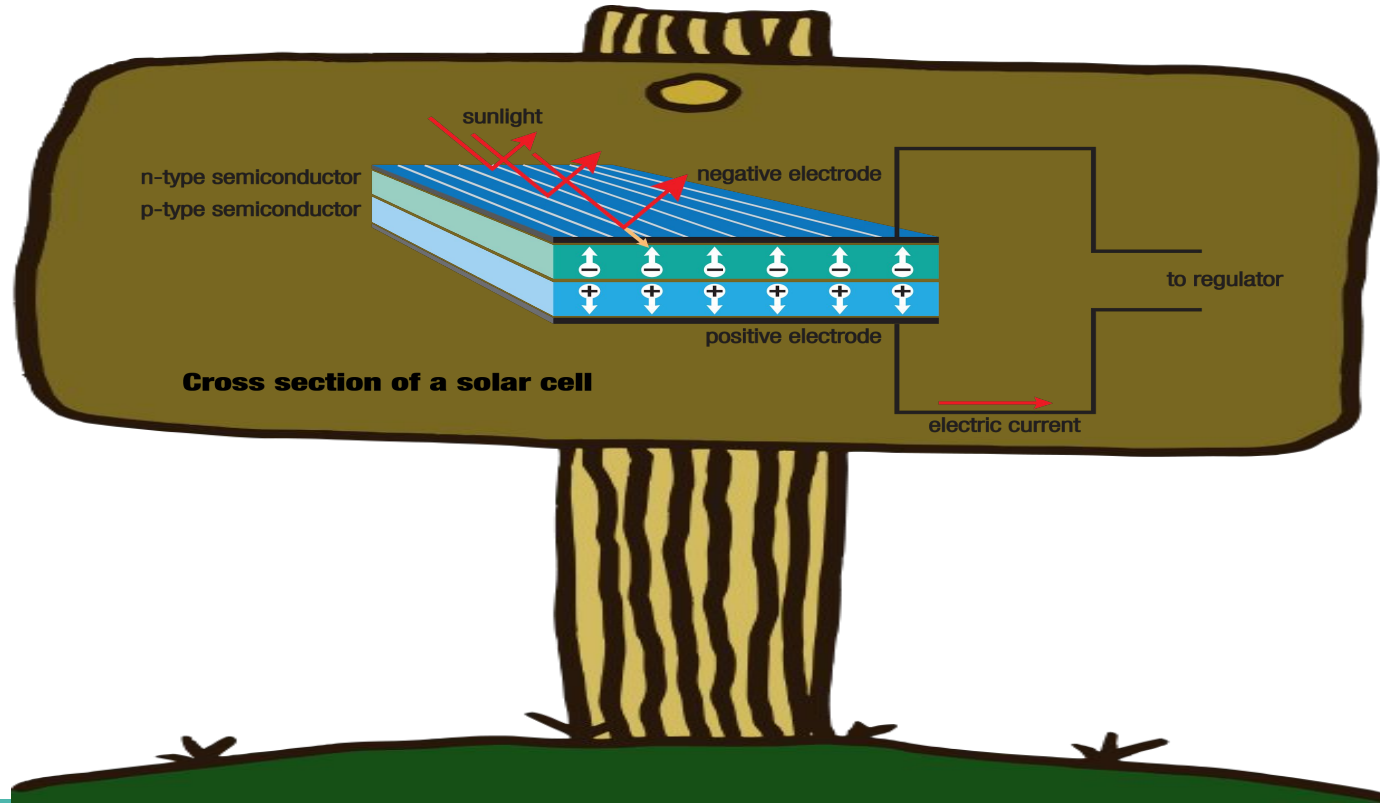


HOW DOES A SOLAR PANEL WORK?

Solar panels take energy from the sun and convert it into energy for everyday use. Each panel is made up of smaller cells called photovoltaic cells.

When sunlight strikes a cell, it knocks electrons free from atoms. These electrons become a flow of electricity that is harnessed and converted to a current that can be used in home and other buildings

Let's Take a Walk...



Let's Take a Walk...

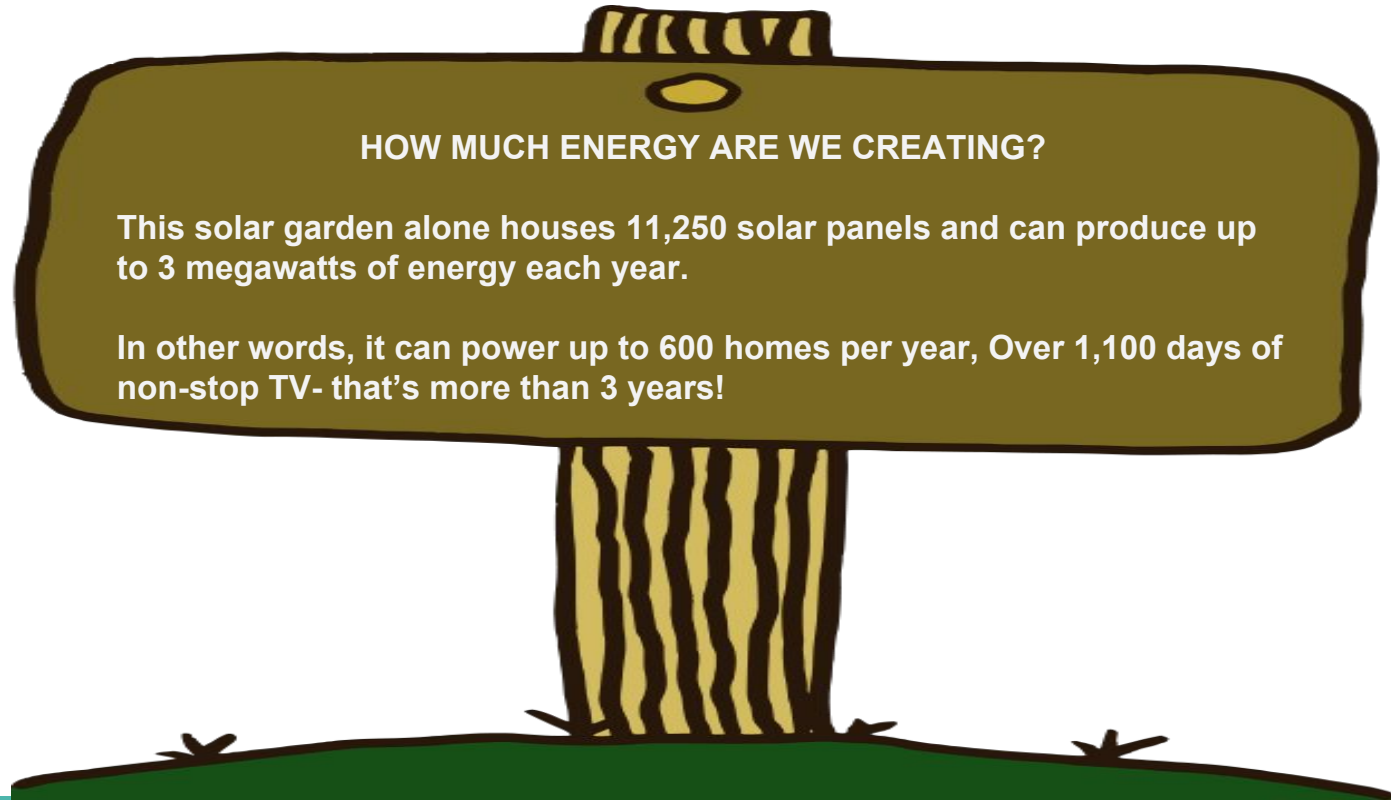


WHY USE SOLAR ENERGY?

In one 40 minute period, the solar energy that reaches Earth could fulfill all human needs for an entire year.

This means it is not only an abundant resource, but a renewable one because we will never run out of sunlight.

Let's Take a Walk...



Let's Take a Walk...



COMMON ENERGY SOURCES USED TODAY:

Currently, coal, natural gas, and petroleum are most commonly used as sources of energy. These are materials found beneath Earth's surface that take millions of years to form from plant and animal material that decomposes.

These sources are processed and used to power homes, automobiles, industry, and even make products like candles and laundry soap

Let's Take a Walk...



WHY SHOULD WE USE LESS TRADITIONAL ENERGY SOURCES?

Traditional sources are finite, meaning they will eventually run out, and are already becoming increasingly difficult to find and extract from the Earth.

They also have negative impacts on the environment such as:
Air Pollution, Groundwater Pollution, and Increases in greenhouse gases that heat the Earth leading to other problems worldwide

Let's Take a Walk...



WHY IS SOLAR ENERGY BETTER?

Solar Energy is renewable (won't run out) and leads to significantly less pollution overall. Over the course of 25 years, 12 solar blocks (average number of blocks a typical home would use) will offset CO₂ emissions by 192 tons. This is equivalent to planting 144 trees or eliminating 60 tons of landfill waste.

Let's Take a Walk...



IS SOLAR ENERGY THE ONLY RENEWABLE ENERGY SOURCE?

NO- There are many different kinds of renewable energy, each with their own advantages. Wind energy comes from harvesting the power from the wind by turbines. Geothermal energy is from the heat that is found below the earth's crust. Hydroelectric energy which is from the movement of water-the largest renewable energy source in the US and the world

Let's take a walk..



SOLAR ENERGY AT GVSU

Grand Valley has subscribed to use 500kW, or about 80 homes worth of energy, each year.

But they're not the only ones who can make a difference.

YOU can subscribe to solar energy, too! Any Consumers Energy customer can subscribe to up to 12 solar blocks to use for their home.

Call 1 800-241-3368 to find out how!!

Advantages

- ★ Easily accessible from road
- ★ Convenience- visit without prior scheduling
- ★ Normalize visitors to solar energy sites
- ★ Responsible landscaping remains consistent with project values



Limitations

- ★ No opportunity for Q&A
- ★ Self-motivated visits
- ★ No space for additional activity (i.e. no park area, tables, etc.)
- ★ Road mainly receives University traffic
- ★ Landscape maintenance not feasible to be maintained by GVSU (an “off-site” space)



Future Projects and Alternative Solutions

Postponed Landscaping

- Transplant low-maintenance plants among existing trees and our proposed signage

- Forsythia
- Lilacs
- Other shrubbery



- Maintenance regulated by a volunteer source
 - Sustainable Agriculture Project
 - Horticulture Students
 - Interested Community Volunteer

(+) Low burden of GVSU, incorporates community member/org

Message Board- multidisciplinary involvement

Instead of multiple signs, use a message board

- Graphic Design student to create display

(+) access to information, incorporates student work, can be easily updated



Nitty Gritty Numbers

Prototype Costs

Signage: pending, contact Mary Cook from Valley City Sign Co.

Seating Area: \$3,044.40

Landscape: based on contract bid

Alternative Project Costs

XL Message Board: \$1,552.85